

removing said titanium nitride film which is arranged over underlying cobalt silicide film using a hydrogen peroxide-water mixture.

4. (Amended) A method of producing semiconductor devices, comprising:

forming cobalt film on the top surface of a silicon substrate, which has a gate electrode and a diffusion layer;

forming titanium nitride film as the cap film on the top surface of said cobalt film; selectively reacting the silicon of said silicon substrate and the cobalt of said cobalt film; and

removing said titanium nitride film which is arranged over underlying cobalt silicide film using a hydrogen peroxide-water mixture.

5. (Amended) A method of producing semiconductor devices by cobalt silicide technology with titanium film as the cap film, comprising:

removing said titanium film which is arranged over underlying cobalt silicide film using a hydrogen peroxide-water mixture.

8. (Amended) A method of producing semiconductor devices, comprising:

forming cobalt film on the top surface of a silicon substrate, which has a gate electrode and a diffusion layer;

forming titanium film as the cap film on the top surface of said cobalt film;

selectively reacting the silicon of said silicon substrate and cobalt of said cobalt film; and

removing said titanium film which is arranged over underlying cobalt silicide film using a hydrogen peroxide-water mixture.

9. (Thrice Amended) A method of producing semiconductor devices by cobalt silicide technology with titanium nitride film as the cap film, comprising:

removing a first portion of said titanium nitride film which is arranged over underlying cobalt silicide film by a first removal step using an ammonia-hydrogen peroxide-water mixture such that a second portion of said titanium nitride film remains covering said cobalt silicide film; and

removing said second portion of said titanium nitride film on said cobalt silicide film by a second removal step using a hydrogen peroxide-water mixture so as to expose a surface of the cobalt silicide film without etching thereof.

12. (Thrice Amended) A method of producing semiconductor devices, comprising:

forming cobalt film on the top surface of a silicon substrate, which has a gate electrode and a diffusion film;

forming titanium nitride film as the cap film on the top surface of said cobalt film;
selectively reacting the silicon of said silicon substrate and the cobalt of said cobalt film;

removing a first portion of said titanium nitride film which is arranged over underlying cobalt silicide film by a first removal step using an ammonia-hydrogen-peroxide-water mixture such that a second portion of said titanium nitride film remains covering said cobalt silicide film; and

removing said second portion of said titanium nitride film remaining on said cobalt silicide film by a second removal step using a hydrogen peroxide-water mixture so as to expose a surface of said cobalt silicide film without etching thereof.

13. (Thrice Amended) A method of producing semiconductor devices by cobalt silicide technology with titanium film as the cap film, comprising:

removing a first portion of said titanium film which is arranged over underlying cobalt silicide film by a first removal step using an ammonia-hydrogen peroxide-water mixture such that a second portion of said titanium nitride film remains covering said cobalt silicide film; and

removing said second portion of said titanium film remaining on said cobalt silicide film by a second removal step using a hydrogen peroxide-water mixture so as to expose a surface of said cobalt silicide film without etching thereof.

16. (Thrice Amended) A method of producing semiconductor devices, comprising:

forming cobalt film on the top surface of a silicon substrate, which has a gate electrode and a diffusion layer;

forming titanium film as the cap film on the top surface of said cobalt film;

selectively reacting the silicon of said silicon substrate and the cobalt of said cobalt film;

removing a first portion of said titanium film which is arranged over underlying cobalt silicide film by a first removal step using an ammonia-hydrogen peroxide-water-mixture such that a second portion of said titanium film remains covering said cobalt silicide film, and

removing said second portion of said titanium film remaining on said cobalt silicide film by a second removal step using a hydrogen peroxide-water mixture so as to expose a surface of said cobalt silicide film without etching thereof.

17. (Amended) An etching liquid, which is a hydrogen peroxide-water mixture for removal of titanium nitride film on the top surface of cobalt film or cobalt silicide.

18. (Amended) An etching liquid, which is a hydrogen peroxide-water mixture for removal of titanium film on the top surface of cobalt film or cobalt silicide.